CLAIMS

1.   A network configuration management method for managing a network configuration in such a way that a participation terminal device can directly communicate with another participation terminal device, wherein a network includes a plurality of communication terminal devices each having a unique terminal identifier, one of the plurality of communication terminal devices is a management terminal device, and a communication terminal device which is permitted by the management terminal device to participate in the network is the participation terminal device; the network configuration management method comprising the steps of:

sending from the management terminal device, participation terminal information stored in the management terminal device;

receiving by the participation terminal device other than the management terminal device, the participation terminal information sent from the management terminal device;

judging by the participation terminal device other than the management terminal device, whether or not the participation terminal device can communicate with another participation terminal device that is participating in the network;

sending a communication availability judgment result obtained by the step of judging, from the participation terminal device other than the management terminal device to the management terminal device; and

determining by the management terminal device, a participation terminal device that should be excluded from the network in accordance with the communication availability judgment result, and deleting by the

549121WOT

management terminal device, the participation terminal device that should be excluded from the network from the participation terminal information, thereby updating the participation terminal information stored in the management terminal device.

2.   The network configuration management method according to claim 1, wherein, when there is a participation terminal device that should be excluded from the network, the step of updating the participation terminal information includes a process of sending a notice of exclusion for notifying that the participation terminal device that should be excluded is excluded from the network, from the management terminal device to the participation terminal device that should be excluded.

3.   The network configuration management method according to claim 1, wherein the judging in the step of judging whether or not the participation terminal device can communicate with another participation terminal device, includes

a process of sending data for the communication availability judgment at regular intervals from the participation terminal device other than the management terminal device to another participation terminal device that is participating in the network, and

a process of judging whether or not the participation terminal device that has received the data for communication availability judgment can communicate in accordance with the received data for communication availability judgment.

4.   The network configuration management method according to claim 1, further comprising the step of

82

performing an indication, by the participation terminal device that has been excluded from the network, for notifying a user of a fact that the participation terminal device has been excluded from the network.

5.   The network configuration management method according to claim 1, further comprising the step of performing an indication, by the management terminal device, for notifying a user of a fact that the participation terminal device is excluded from the network.

6.   A management communication terminal device for managing a network configuration in such a way that a participation terminal device can directly communicate with another participation terminal device, wherein a network includes a plurality of communication terminal devices each having a unique terminal identifier, one of the plurality of communication terminal devices is the management communication terminal device, and a communication terminal device which is permitted by the management communication terminal device to participate in the network is the participation terminal device; the management communication terminal device comprising:
        a communication section which performs communication;
        a storage section which stores participation terminal information regarding the participation terminal device which is permitted to participate in the network; and
        a control section;
        wherein the control section controls so as to perform and repeat
        a process of sending the participation terminal information stored in the storage section from the

communication section;

a process of receiving communication availability judgment result, after receiving the sent participation terminal information, from a participation terminal device which sends the communication availability judgment result indicating whether or not communication can be performed with another participation terminal device that is participating in the network, another participation terminal device being other than the management communication terminal device; and

a process of determining a participation terminal device that should be excluded from the network in accordance with the communication availability judgment result, and deleting the participation terminal device that should be excluded from the network from the participation terminal information, thereby updating the participation terminal information.

7. The management communication terminal device according to claim 6, wherein, when the participation terminal information is updated, if there is a participation terminal device that should be excluded from the network, the management communication terminal device sends a notice of exclusion for notifying the participation terminal device that should be excluded from the network of a fact that the participation terminal device that should be excluded is excluded from the network.

8. A communication terminal device other than a management terminal device, wherein a network includes a plurality of communication terminal devices each having a unique terminal identifier, one of the plurality of communication terminal devices is the management terminal

device, and a communication terminal device which is permitted by the management terminal device to participate in the network is the participation terminal device; the communication terminal device comprising:

a communication section which performs communication;

a storage section which stores the participation terminal information regarding the participation terminal device which is permitted to participate in the network and communication availability judgment result; and

a control section;

wherein the control section controls so as to perform and repeat

a process of judging whether communication with another participation terminal device that is participating in the network can be performed or not; and

a process of sending the communication availability judgment result obtained by the process of judging to the management terminal device.

9. The communication terminal device according to claim 8, wherein the judgment at the process of judging whether the communication with the participation terminal device can be performed or not, includes:

a process of sending data for the communication availability judgment at regular intervals from the participation terminal device other than the management terminal device to another participation terminal device that is participating in the network, and

a process of judging whether or not the participation terminal device other than the management terminal device that has received the data for communication availability judgment can communicate in accordance with the received data for communication

availability judgment.

10. The communication terminal device according to claim 8, wherein

the participation terminal device excluded from the network comprises a display section, and

the display section displays so as to notify a user that the own communication terminal device has been excluded from the network.

11. A network band management method used in a network that comprises a plurality of communication terminals including a single management terminal and a plurality of managed terminals, the plurality of the communication terminals in the network directly communicating with each other; the network band management method comprising the steps of:

giving notice of sending information which contains information regarding band for data transmission being used by the plurality of managed communication terminals, from the plurality of the managed terminals to the management terminal;

generating by the management terminal, band-in-use information regarding a band being used in the network in accordance with the notified sending information; and

giving notice of the generated band-in-use information from the management terminal to the plurality of the managed terminals.

12. The network band management method according to claim 11, further comprising the step of determining by the communication terminal whether a predetermined amount of data can be sent or not in accordance with the band-in-use information which is notified in the step of giving

notice of the band-in-use information.

13.   The network band management method according to claim 12, further comprising the step of notifying a user of a result of the determination whether the predetermined amount of data can be sent or not, by the communication terminal.

14.   The network band management method according to claim 12, further comprising the step of converting by the communication terminal, the predetermined amount of data to be within the available communication band in accordance with the band-in-use information in order to send the converted data, when the predetermined amount of data is determined not to be able to be sent.

15.   The network band management method according to claim 11, wherein the step of giving notice of the band-in-use information is performed in accordance with a notification request from the managed terminal to the management terminal.

16.   A network participation method for participating in a network by a participation requesting terminal, wherein the network includes a plurality of communication terminals each having a unique terminal identifier, one of the plurality of communication terminals is a management terminal, and the communication terminals that are participating in the network can directly communicate with each other and can acquire available transmission rates each other; the network participation method comprising the steps of:
        receiving participation terminal information of the communication terminal that is participating in the

network, the participation terminal information being sent
from the management terminal at regular intervals;

judging communication availability judgment
indicating whether communication with the communication
terminals that are participating in the network can be
performed and available transmission rates in accordance
with the participation terminal information;

sending a participation request which contains a
result of the transmission rate judgment to the management
terminal;

receiving a participation permissibility judgment
result indicating whether the participation requesting
terminal can participate in the network or not, the
participation permissibility judgment result being sent
from the management terminal, as a result of the
participation request sending; and

determining network participation permissibility in
accordance with the received participation permissibility
judgment result.

17.   The network participation method according to claim
16, wherein the step of receiving the participation
permissibility judgment result includes the step of
notifying a user that the communication terminal has
failed to participate in the network, when the
participation requesting terminal receives a judgment
result indicating not to be able to participate in the
network.

18.   A network configuration management method for
managing a network configuration by a management terminal,
wherein the network includes a plurality of communication
terminals each having a unique terminal identifier, one of
the plurality of communication terminals is the management

terminal, and the communication terminals that are participating in the network can directly communicate with each other and can acquire available transmission rates each other; the network configuration management method comprising the steps of:

giving notice of participation terminal information of the communication terminal that is participating in the network, to the communication terminal in the network, by broadcasting at regular intervals;

receiving a participation request being sent from a participation requesting terminal requesting to newly participate in the network, the participation request which contains communication availability information indicating whether communication with the communication terminals that is participating in the network can be performed or not and a result of available transmission rate judgment;

judging whether participation of the participation requesting terminal in the network can be permitted or not in accordance with the received participation request;

sending a network participation permissibility judgment result regarding the participation of the participation requesting terminal to the participation requesting terminal;

updating the participation terminal information in accordance with the participation permissibility judgment, if the participation requesting terminal can participate in the network; and

sending the participation terminal information to the communication terminal that is participating in the network, if the participation terminal information is updated.

19.   A network configuration management method for

managing a network configuration, wherein the network includes a plurality of communication terminals each having a unique terminal identifier, one of the plurality of communication terminals is the management terminal, and the communication terminals that are participating in the network can directly communicate with each other and can acquire available transmission rates each other; the network configuration management method comprising the steps of:

receiving by a certain communication terminal, participation terminal information of the communication terminal that is participating in the network, the participation terminal information being sent from the management terminal at regular intervals, the certain communication terminal being one of the plurality of communication terminals forming the network, the certain communication terminal being other than the management terminal;

judging by the certain communication terminal other than the management terminal, communication availability indicating whether communication with the communication terminals that are participating in the network can be performed or not and available transmission rates in accordance with the participation terminal information;

sending by the certain communication terminal other than the management terminal, a result of the transmission rate judgment to the management terminal as transmission rate judgment information; and

excluding by the certain communication terminal other than the management terminal, the certain communication terminal from the network in accordance with a notice of exclusion being sent from the management terminal, if the certain communication terminal cannot communication with the other communication terminals that

are participating in the network at a predetermined transmission rate or more, as a result of the transmission rate judgment.

20.   A network configuration management method according to claim 19, wherein the step of excluding includes the steps of:

confirming whether the received participation terminal information from the management terminal contains the terminal information , after the sending of the transmission rate judgment information; and

judging that the certain communication terminal is participating in the network if the participation terminal information contains information of the certain communication terminal, and judging that the certain communication terminal has been excluded from the network if the participation terminal information does not contain the information of the certain communication terminal.

21.   The network configuration management method according to claim 19, wherein the excluding step includes the step of notifying a user of the exclusion of the certain communication terminal from the network, when the certain communication terminal is judged that should be excluded from the network.

22.   A network configuration management method for managing a network configuration by a management terminal, wherein the network includes a plurality of communication terminals each having a unique terminal identifier, one of the plurality of communication terminals is the management terminal, and the communication terminals that are participating in the network can directly communicate with each other and can acquire available transmission rates

each other; the network configuration management method comprising the steps of:

giving notice of participation terminal information of the communication terminal that is participating in the network, to the communication terminal in the network, by broadcasting at regular intervals;

receiving a confirmation result of available transmission rates for communication with each of the communication terminals by the communication terminal that is participating in the network; and

determining whether the communication terminal can participate in the network or not in accordance with the received transmission rate information, and deleting terminal information of a communication terminal being determined not to be able to participate in from the participation terminal information, thereby excluding the communication terminal from the network.

23. The network configuration management method according to claim 22, further comprising the step of notifying a user of the exclusion of the communication terminal from the network, when the communication terminal that is participating in the network was excluded.

24. A communication terminal device requesting to participate in a network, wherein the network includes a plurality of communication terminals each having a unique terminal identifier, one of the plurality of communication terminals is a management terminal, and the communication terminals that are participating in the network can directly communicate with each other and can acquire available transmission rates each other; the communication terminal device comprising:

a participation terminal information receiving means

for receiving participation terminal information of the communication terminals that are participating in the network, the participation terminal information being sent from the management terminal at regular intervals;

a transmission rate judging means for judging communication availability indicating whether or not communication with the communication terminal that is participating in the network can be performed and available transmission rates in accordance with the participation terminal information;

a participation request sending means for sending a participation request which contains a result of the transmission rate judgment to the management terminal;

a participation judgment result receiving means for receiving a result of participation permissibility judgment indicating whether the participation requesting terminal can participate in the network or not, the participation permissibility judgment result being sent from the management terminal as a result of the participation request sending; and

a determining means for determining the network participation permissibility in accordance with the received participation judgment result.

25.   The communication terminal device according to claim 24, further comprising a means for notifying a user that the communication terminal has failed to participate in the network, when the participation judgment result receiving means receives a judgment result indicating that the own communication terminal cannot participate in the network.

26.   A communication terminal device as a management terminal which is one of a plurality of communication

terminals forming a network, wherein the network includes
the plurality of communication terminals each having a
unique terminal identifier, one of the plurality of
communication terminals is the management terminal, and
the communication terminals that are participating in the
network can directly communicate with each other and can
acquire available transmission rates each other; the
communication terminal device comprising:

a participation terminal information notifying means
for giving notice of participation terminal information of
the communication terminal that is participating in the
network to the communication terminals that are
participating in the network by broadcasting at regular
intervals;

a participation request receiving means for
receiving communication availability information
indicating whether communication with the communication
terminal that is participating in the network can be
performed or not and a participation request which
contains an available transmission rate judgment result,
being sent from a participation requesting terminal which
offers to newly participate in the network;

a participation request judging means for judging
the network participation permissibility of the
participation requesting terminal in accordance with the
received participation request;

a participation request judgment result sending
means for sending a participation permissibility judgment
result whether the participation requesting terminal can
participate in the network or not, to the participation
requesting terminal;

a participation terminal information updating means
for updating the participation terminal information, when
the participation requesting terminal is judged to be able

94

to participate in the network, in accordance with the participation permissibility judgment; and

a sending means for sending the participation terminal information to the communication terminal that is participating in the network, when the participation terminal information is updated.

27. A communication terminal device other than a management terminal, which is one of a plurality of communication terminals forming a network, wherein the network includes the plurality of communication terminals each having a unique terminal identifier, one of the plurality of communication terminals is the management terminal, and the communication terminals that are participating in the network can directly communicate with each other and can acquire available transmission rates each other; the own communication terminal device comprising:

a participation terminal information receiving means for receiving participation terminal information of a communication terminal that is participating in the network, the participation terminal information which is sent from the management terminal at regular intervals;

a transmission rate judging means for judging communication availability judgment indicating whether communication with the communication terminals that are participating in the network can be performed or not and available transmission rates for communication, in accordance with the participation terminal information;

a transmission rate judgment information sending means for sending to the management terminal the transmission rate judgment result as transmission rate judgment information; and

an excluding means for excluding the own

communication terminal device from the network in accordance with a notice of exclusion which is sent from the management terminal, as a result of the transmission rate judgment, when the communication terminal device fails to communicate with the communication terminal that is participating in the network at a predetermined transmission rate or more.

28.   The communication terminal device according to claim 27, wherein when the communication terminal device excludes the own communication terminal from the network, after sending the transmission rate judgment information, the communication terminal device confirms whether the participation terminal information which is received from the management terminal contains the own communication terminal information, judges that the own communication terminal is participating in the network if the participation terminal information contains the own communication terminal information, and judges that the own communication terminal is excluded from the network if the participation terminal information does not contain the own communication terminal information.

29.   The communication terminal device according to claim 27, further comprising a means for notifying a user of the exclusion of the communication terminal from the network, when the own communication terminal is judged that should be excluded from the network by the network exclusion means.

30.   A communication terminal device as a management terminal which is one of a plurality of communication terminals forming a network, wherein the network includes the plurality of communication terminals each having a

unique terminal identifier, one of the plurality of
communication terminals is the management terminal, and
the communication terminals that are participating in the
network can directly communicate with each other and can
acquire available transmission rates each other; the
communication terminal device comprising:

a participation terminal information notifying means
for giving notice of participation terminal information of
the communication terminal that is participating in the
network, to the communication terminal that is
participating in the network by broadcasting at regular
intervals;

a transmission rate judgment information receiving
means for receiving a confirmation result of available
transmission rates for communication between the
communication terminal that is participating in the
network and each of the communication terminals; and

determining whether the communication terminal can
participate in the network or not in accordance with the
received transmission rate information in accordance with
the transmission rate judgment information received at the
transmission rate judgment information receiving means,
and deleting terminal information of a communication
terminal being determined not to be able to participate in
from the participation terminal information, thereby
excluding the communication terminal from the network.

31. The communication terminal device according to claim
30, further comprising a means for notifying a user that
the communication terminal has been excluded from the
network, when the communication terminal that is
participating in the network was excluded from the network
by the network exclusion means.

97